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ART UNIT: 2871 Fax: (703) 872-9318**

FROM: Winston Hsu, PATENT AGENT, REG. NO. : 41,526

SERIAL NO.: 09/683,482

ATTORNEY DOCKET NO.: ADTP0028USA

SUBJECT: INFORMATION DISCLOSURE STATEMENT

TOTAL PAGES: 12 PAGES (INCLUDING COVER PAGE)

Winston Hsu 2004/02/25

ADTP0028USA5_D1_1

PTO/SB/97 (08-00)
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APPLICATION NUMBER: 09/683,482

PAPERS INCLUDED:

(1) Transmittal Form	1 PAGE
(2) Fee Transmittal	1 PAGE
(3) Information Disclosure Statement	8 PAGES

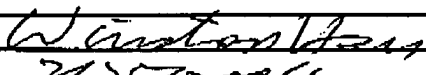
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TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	09/683,482
	Filing Date	01/07/2002
	First Named Inventor	Jia-Fam Wong
	Art Unit	2871
	Examiner Name	RUDE, TIMOTHY L
	Attorney Docket Number	ADTP0028USA
Total Number of Pages in This Submission	10	

ENCLOSURES (Check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input checked="" type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance communication to Technology Center (TC) <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Other Enclosure(s) (please identify below):
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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT		
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Signature		
Date	2/25/2004	

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FEE TRANSMITTAL
for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27**TOTAL AMOUNT OF PAYMENT** (\$)**180.00****Complete if Known**

Application Number	09/683,482
Filing Date	01/07/2002
First Named Inventor	Jia-Fam Wong
Examiner Name	RUDE, TIMOTHY L
Art Unit	2871
Attorney Docket No.	ADTP0028USA

METHOD OF PAYMENT (check all that apply)☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None☒ Deposit Account:

Deposit Account Number	50-0801
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☒ Charge fee(s) indicated below ☒ Credit any overpayments☒ Charge any additional fee(s) or any underpayment of fee(s)☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.**FEE CALCULATION****1. BASIC FILING FEE**

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1001 770	2001 385	Utility filing fee	
1002 340	2002 170	Design filing fee	
1003 530	2003 265	Plant filing fee	
1004 770	2004 385	Reissue filing fee	
1005 160	2005 80	Provisional filing fee	
SUBTOTAL (1)			(\$)0.00

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims	Extra Claims	Fee from below	Fee Paid
Independent	-20** =	X	
Multiple Dependent	-3** =	X	

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1202 18	2202 9	Claims in excess of 20	
1201 86	2201 43	Independent claims in excess of 3	
1203 280	2203 145	Multiple dependent claim, if not paid	
1204 86	2204 43	** Reissue independent claims over original patent	
1205 18	2205 9	** Reissue claims in excess of 20 and over original patent	
SUBTOTAL (2)			(\$)0.00

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)**3. ADDITIONAL FEES**

Large Entity Small Entity

Fee Code (\$)	Fee Code (\$)	Fee Description	Fee Paid
1051 130	2051 65	Surcharge - late filing fee or oath	
1052 50	2052 25	Surcharge - late provisional filing fee or cover sheet	
1053 130	1053 130	Non-English specification	
1812 2,520	1812 2,520	For filing a request for <i>ex parte</i> reexamination	
1804 920*	1804 920*	Requesting publication of SIR prior to Examiner action	
1805 1,840*	1805 1,840*	Requesting publication of SIR after Examiner action	
1251 110	2251 55	Extension for reply within first month	
1252 420	2252 210	Extension for reply within second month	
1253 950	2253 475	Extension for reply within third month	
1254 1,480	2254 740	Extension for reply within fourth month	
1255 2,010	2255 1,005	Extension for reply within fifth month	
1401 330	2401 165	Notice of Appeal	
1402 330	2402 165	Filing a brief in support of an appeal	
1403 290	2403 145	Request for oral hearing	
1451 1,510	1451 1,510	Petition to institute a public use proceeding	
1452 110	2452 55	Petition to revive - unavoidable	
1453 1,330	2453 665	Petition to revive - unintentional	
1501 1,330	2501 665	Utility issue fee (or reissue)	
1502 480	2502 240	Design issue fee	
1503 640	2503 320	Plant issue fee	
1480 130	1480 130	Petitions to the Commissioner	
1807 50	1807 50	Processing fee under 37 CFR 1.17(q)	
1806 180	1806 180	Submission of Information Disclosure Stmt	180.00
8021 40	8021 40	Recording each patent assignment per property (times number of properties)	
1809 770	2809 385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810 770	2810 385	For each additional invention to be examined (37 CFR 1.129(b))	
1801 770	2801 385	Request for Continued Examination (RCE)	
1802 900	1802 900	Request for expedited examination of a design application	

Other fee (specify)

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$)**180.00****SUBMITTED BY**

Name (Print/Type)	Winston Hsu	Registration No. (Attorney/Agent)	41,526	Telephone	886289237350
Signature	<i>Winston Hsu</i>	Date	1/27/2004		

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PATENT**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Jia-Fam Wong Examiner: RUDE, TIMOTHY L
5 Filing Date: 01/07/2002 Art Unit: 2871
Serial No.: 09/683,482 Docket No.: ADTP0028USA

Title: LIQUID CYRSTAL DISPLAY WITH A LOW DRIVING VOLTAGE

10 To: Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Subject: Information disclosure statement Under
15 37C.F.R. §1.56 and 37C.F.R. §1.97(c).

Dear Sir:

20 This is an Information Disclosure Statement in
accordance with the duty to disclose information
material to patentability under 37 C.F.R. §1.56.
Applicants wish to make of record the documents listed
on the accompanying form PTO/SB/08. It is respectfully
25 requested that the Examiner initials the cited
references on the form and that it be made of record
in the application and that a copy of the initialed
form be sent to Applicants with the next communication
from the Examiner.

30 Since the information disclosure statement is filed
before the mailing date of any of a final action, the
requirement set forth in §1.97(c) is satisfied. The

prior art patents contained in the information disclosure statement were cited in communications from the Taiwan Intellectual Property Office on 01/07/2004. Applicant sincerely hopes that the examiner can
5 consider the items contained in the information disclosure statement.

According to the requirement set forth in 37C.F.R. §1.98 and M.P.E.P. 609 (8th edition, Aug. 2001),
10 the applicant is submitting copies of the references cited by the Taiwan Intellectual Property Office (US Patent No. 5995186, granted Nov. 30, 1999) and a concise explanation of the relevance in this application hereinafter.

15

US Patent No. 5995186 discloses a parallel field liquid crystal display having straight data and common electrodes inclined at an angle to a gate line. The in-plane switching mode LCD (IPS LCD) comprises a first
20 substrate 27 and a second substrate 26 opposite and parallel to the first substrate 27, an alignment layer 59 disposed on an inner surface of the first substrate 27, a polarizer 63 disposed on an outer surface of the first substrate 27, an alignment layer 62 disposed on
25 an inner surface of the second substrate 26, and an analyzer 64 disposed on an outer surface of the second substrate 26. The IPS LCD further comprises straight and parallel data electrodes 48 and common electrodes 49 disposed on the inner surface of the first substrate
30 27, and a liquid crystal layer 60 injected between the first substrate 27 and the second substrate 26 (refer to Fig.(2) of the cited prior art).

The data electrode 48 is 95° to the gate line 41. The alignment layer 59, the alignment layer 62, and the analyzer is 90° to the gate line 41. The polarizer
5 63 is 0° to the gate line 41 (refer to Fig.(3) of the cited prior art) . When no voltage is applied between the data electrode 48 and the common electrode 49, all of the liquid crystal molecules are aligned parallel to the first substrate 27 and the second substrate 26,
10 and parallel to the principle transmission axis of the analyzer 64. By forming the data electrode 48 and the common electrode 49 slant to the gate line 41, the viewing angle inverted problem is greatly improved such that the viewing angle inverted areas only appear
15 at the corners of the display. When a voltage is applied between the data electrode 48 and the common electrode 49, an electric field 13, which is 5° to the gate line 41, is produced between the data electrode 48 and the common electrode 49. At this time, the liquid crystal
20 molecules 77 adjacent to the first substrate 27 are rotated to the electric field direction; the liquid crystal molecules 78 adjacent to the second substrate 26 are subject to an electric field below the threshold electric field so that the liquid crystal molecules
25 78 retain in the original direction. In this manner, the liquid crystal molecules are continuously twisted between the first substrate 27 and the second substrate 26. Polarized light having a polarized direction of the polarizer 63 is guided by the liquid crystal
30 molecules to the perpendicular direction, which is parallel with the principle transmittance axis of analyzer 64. As a result, a white state is obtained

(refer to Fig.(2) and Fig.(3) of the cited prior art).

Claim 1 of the present application is repeated here for reference:

5

1. A liquid crystal display (LCD) comprising:
- a first substrate comprising a first surface;
 - a second substrate comprising a second surface, the second surface being in parallel with and
 - 10 opposite to the first surface of the first substrate, and a pixel area being defined on the second surface;
 - a first common electrode positioned on the first surface of the first substrate;
 - 15 a pixel electrode disposed above the pixel region of the second substrate, the second electrode having a first slit elongated along a first direction;
 - an isolation layer disposed on the surface of the second substrate to cover the pixel electrode;
 - 20 a second common electrode disposed on the isolation layer and within the pixel region, a second slit being defined on the second common electrode and along the first direction, the first and second
 - 25 slits being interlaced; and
 - a plurality of anisotropic liquid crystal molecules with negative dielectric constant positioned between the first common electrode and the second common electrode, the longitudinal axis
 - 30 of the liquid crystal molecules being positioned along a second direction horizontally, and a first angle being formed between the first

direction and the second direction;
wherein a biased electric field is formed as a voltage
is applied between the first common electrode
and the pixel electrode,
5 such that (a) a first horizontal biased electric
field is formed in the neighborhood of the
second slit, the first horizontal biased
electric field is perpendicular to the first
direction, and the liquid crystal molecules
10 are rotated to make the longitudinal axis of
the liquid crystal molecules in the
neighborhood of the second slit being in
parallel to the first direction,
(b) the longitudinal axis of the liquid crystal
15 molecules in the neighborhood of the first
common electrode maintain along the second
direction because no horizontal biased
electrical field is formed near the first
common electrode, and
20 (c) the liquid crystal molecules between the
first common electrode and the second slit of
the second common electrode gradually rotate
from the second direction to the first
direction."

25

Compared with US Patent No. 5995186, the present
application liquid crystal display is not only an IPS
LCD, but is also featured in having an upper common
electrode disposed on a lower surface of a top
30 substrate. Therefore, two horizontal biased electric
fields and two vertical biased electrical fields are
provided by a biased electric field 120 formed between

the upper common electrode 104 and the pixel electrode 208 and a biased electric field 220 formed between the lower common electrode 210 and the pixel electrode 208. Under the circumstances, the rotation of the liquid crystal molecules 40 are accelerated by both the horizontal biased electric field 1201 of the biased electric field 120 and the horizontal biased electric field (not shown) of the biased electric field 220. In addition, the vertical biased electric field 1202 of the biased electric field 120 will maintain the liquid crystal molecules 40 to rotate on a fixed plane. As a result, the driving voltage is lowered, the rotation of the liquid crystal molecules 40 is accelerated, and the wide view angle is obtained.

15

In the cited prior art, not any electrode is disposed on the lower surface of the second substrate 26. Therefore, it is impossible to produce the same number of components of biased electric fields. Furthermore, there is no vertical biased electric field produced between the first substrate 27 and the second substrate 26 to maintain the liquid crystal molecules to rotate on the fixed plane. In summary, the performance of the IPS LCD in the cited prior art is not equivalent to the performance of the present application LCD.

It is clear that the LCD disclosed in the present application has a different structure and different function from the IPS LCD disclosed in the cited prior arts.

Since claim 1 of the present application is substantially different from the prior art patent US Patent No. 5995186, and all other claims are dependent on claim 1, a quick allowance of the present
5 application is sincerely requested.

Sincerely,

10

Winston Hsu

Date: 2/25/2004

Winston Hsu, Patent Agent No. 41,526

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U.S.A.

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PAGE 12/12 * RCVD AT 2/25/2004 4:17:35 AM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/1 * DNIS:8729318 * CSID:8064986673 * DURATION (mm-ss):04-34